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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,593	01/21/2004	Eric A. Merz	117097	3233

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EXAMINER

VO, ANH T N

ART UNIT PAPER NUMBER

2861

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/760,593

Applicant(s)

MERZ ET AL.

Examiner

Anh T.N. Vo

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-21,24,25 and 27-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-21,24,25 and 27-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

NON-FINAL REJECTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/1/06 has been entered.

Claim Rejections

Claim Rejections - 35 USC § 112

Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction or clarification is required.

In claim 28, the recitation "the same fluid delivery port" on line 5 lacks clear antecedent basis. It is unclear what is meant by "the same fluid deliver port" is.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 28 is rejected under 35 USC 102 (b) as being anticipated by Tsuchii (US 6,398,353).

Tsuchii discloses in Figures 1-12 an ink cartridge comprising:

- a fluid container having at least one free fluid reservoir (3) located in the container in

Art Unit: 2861

side-by-side relationship with a negative pressure medium containing chamber (4) and fluidly connected thereto;

- an fluid delivery port (the opening 10 between the filter 9 and head chip 11) being located directly beneath the at least one free fluid reservoir (3) and a fluid ejector (head chip 11) such that the same fluid delivery port extends beneath more than half of the free fluid reservoir and more than half of the negative pressure material chamber, see Figure 1; and

- fluid (ink) being delivered from the cartridge only through a portion of delivery port beneath the free fluid reservoir.

Claim Rejections - 35 USC § 103

The remaining are dependent from the above rejected claims. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-9 and 12-21, 29-30, 32-35 are rejected under 35 USC 103 (a) as being unpatentable over Tsuchii (US 6,398,353) in view of Dowell (US 6,773,097).

Tsuchii discloses in Figures 1-12 an ink cartridge comprising:

- a fluid container having at least one free fluid reservoir (3) located in the container in side-by-side relationship with a negative pressure medium containing chamber (4) and fluidly connected thereto;
- an fluid delivery port directly connecting the at least one free fluid reservoir (3) and a fluid ejector (11) to deliver fluid to the fluid ejector directly from the free fluid reservoir (3);
- wherein the negative pressure medium containing chamber (4) are located, at least in part, over the fluid delivery port (Figure 1);

- wherein a filter (9) is located directly beneath more than half of both the free fluid reservoir and the negative pressure material chamber, such that the same fluid delivery port extends beneath more than half of the free fluid reservoir and more than half of the negative pressure material chamber, see Figures 1; and
- wherein the filter contacts a substantial portion of the cross-sectional area of the negative pressure material (4);
- wherein the negative pressure medium (6) is separated from and located over the filter (9, Figure 9A);
- wherein the negative pressure medium (6) is located over approximately a same amount of area as the free fluid reservoir is located over (Figure 1);
- wherein the filter (9) comprising at least one capillary element or rib (35, 37, 37, Figures 9A-9B) located between the filter (9) and the negative pressure material (6); and
- wherein at least one bubble chamber (space above the ink (13), Figure 1) is located in the fluid container.

However, Tsuchii does not disclose that the ratio of the volume of the free fluid reservoir (3) and the volume of the negative pressure medium containing chamber (4) is between about 0.3 to 1 and 3.0 to 1 as recited in claims 1 and 29, between 0.5 to 1 and 2 to 1 as recited in claim 14 or approximately 1 to 1 as recited in claims 15 and 30.

Nevertheless, Dowel suggests in Figures 1B, 4 and 10-11 an ink cartridge comprising an bubbling chamber (209), a free ink chamber (214) and a negative pressure chamber (210), wherein the volume of a negative pressure chamber (210) is smaller than the volume of the free fluid chamber (214) at a predetermined ratio for improving performance capability of the cartridge and increasing volumetric efficiency of the ink supply, see lines 51-57, column 8.

It would have been obvious to a person having skill in the art at the time the invention was made to select the negative pressure chamber of Tsuchii smaller than the free ink chamber as suggested by Dowell for the purpose of for improving performance capability of the cartridge and increasing volumetric efficiency of the ink supply.

Noted that, although Dowell does not specify the volume ratios as claimed; however, selecting an optimum ratio for optimizing the supply of ink is considered to be a matter of a design expedient for an engineer. In re Boesch, 617F.2d 272.205USPQ215(CCPA 1980). Lacking of showing any criticality, it would have been obvious to a person having skill in the art at the time the invention was made to select the volume ratios of Tsuchii as claimed for the purpose of enhancing the ink supply to the head.

With regard to claim 4, the modified ink cartridge of Tsuchii would have the portion of the filter in contact with the negative pressure material (6) which is less than the area of the filter in contact with the free fluid reservoir (3) since the negative pressure chamber is smaller than the free ink chamber.

Claims 10-11 and 31 are rejected under 35 USC 13 (a) as being unpatentable over Tsuchii (US 6,398,353) in view of in view of Dowell (US 6,773,097) and further in view of Hayashi et al (US 6,698,871).

Tsuchii in view of Dowell discloses an ink cartridge with all of the limitations of the base claim as stated above but does not disclose that the negative pressure material (6) is made of felt or non-woven material.

Nevertheless, Hayashi et al suggests in Figures 1 using a negative pressure material (1a-1c) made of non-woven material such a felt for decreasing ink residue remaining in the tank, see lines 22-32, column 10.

It would have been obvious to a person having skill in the art at the time the invention was made to employ the pressure material as suggested by Hayashi et al in the modified ink cartridge of Tsuchii for the purpose of decreasing the ink residue remaining in the ink tank.

Claims 24-25 and 27 are rejected under 35 USC 103 (a) as being unpatentable over Tsuchii (US 6,398,353) in view of Cowger (US 4,920,362).

Tsuchii discloses an ink cartridge with all of the limitations of the base claim as stated above but does not disclose that the negative resistance material containing chamber is located between the free fluid reservoir and the bubble chamber” as combined in claim 24.

Nevertheless, Cowger suggests a bubble chamber (18) being placed at right side of the center chamber (16) for collecting bubbles that helps to undergo arbitrarily large altitude and temperature excursions without leaking ink, see line 5-11, column 1.

It would have been obvious to a person having skill in the art at the time the invention was made to employ a bubble chamber as suggested by Cowger in the cartridge of Tsuchii for the purpose of collect air bubbles that helps to undergo arbitrarily large altitude and temperature excursions without leaking ink.

Regarding claim 27, since the pressure medium (6) of Tsuchii is filled inside volume of the chamber (4) of the modified cartridge of Tsuchii; it would have been obviously to attach it to the top wall (lid or cover) for securely holding the medium.


Response to Applicant's Arguments

The applicant argues that Tsuchii does not disclose the limitation “locating a fluid delivery port directly beneath more than half of both the free fluid reservoir and the negative pressure material chamber, such that the same fluid delivery port extends beneath more than half of the free fluid reservoir and more than half of the negative pressure material chamber”. The argument is not persuasive because Figure 8 of Tsuchii clearly shows that the fluid delivery port or the opening between the chambers (3, 4, Figure 1) and the chip 11 covers more than half these chambers (3C, 4C).

The applicant argues that Tsuchii does not disclose “a negative pressure medium containing chamber that is separated from the filter to maintain a space between the filter and the negative pressure medium”. The argument is not persuasive because Figure 9A clearly shows that the negative pressure medium (6) is separated from the filter (9) to maintain a space between them by the spacer (35, 37). The filter (9) does not touch the pressure medium (6).

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (571) 272-2262. The examiner can normally be reached on Tuesday to Friday from 9:00 A.M. to 7:00 P.M.. The fax number of this Group 2861 is (571) 273-8300.



ANH T.N. VO
PRIMARY EXAMINER
January 31, 2007